

Work Order ID 138223***138223***

Page 1

Tuesday, October 27, 2015 11:06:01 AM

Item ID: D4406-041

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Fwd Wearplate Assembly

Start Date: 10/26/2015 Start Qty: 2.00

Required Date: 10/26/2015 Req'd Qty: 2.00

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan: ML5Date: OCT 28 2015

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D4406

C

150

0.00

150

Large Fab

Memo

0.02

Weld bar as per dwg

A/R 2059b hardcoat Batch#: m/26588 → 20596

Weld bar to wearplate as per dwg

A/R s.s. rod Batch #: m/26014x.5 NR 15-12-01

160

QC9- Inspect visual per QSI004- Fusion Welds

0.00

160

QC

Memo

0.00

Quality Control

(5) 15-12-01 DAS
9
9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____			
Misidentified	☐	Past Due	☐				

Work Order ID 138223

Tuesday, October 27, 2015 11:06:01 AM

138223

Page 2

Item ID: D4406-041

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Fwd Wearplate Assembly

Start Date: 10/26/2015 Start Qty: 2.00

2

Cust Item ID:

Required Date: 10/26/2015 Req'd Qty: 2.00

2

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

165

QC5- Inspect part completeness to step on W/O

0.00

165

QC

Memo

0.00

Quality Control

(5)

15-12-01

DAS
9
9-89

170

170

Small Fab

Memo

0.00

Small Fab

Apply coating as per dwg D4406

5

DAS
41
9-89

15-12-1

P.T.O.

180

QC5- Inspect part completeness to step on W/O

0.00

180

QC

Memo

0.00

Quality Control

(5)

DAS
38
9-89

DEC 02 2015

DQA:

Date: 15/12/09



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed:

Date: 15/12/09

Work Order update only ☐

Work Order: <u>138223</u> Part No. <u>D4406-041</u> NCR No. <u>15-5476</u>	DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☒</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>			Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☒	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																	
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Description Work Order Deviation		Disposition		Completed By DAS 41 15-12-1 9-89																																																																
Plus one rackguard not used 4714 not used Apply textured coating as per QSI 005 4.9. See PAR 15-0469				Lead hand / Supervisor Approval Verification DAS DEC 02 2015 9-89																																																																
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OTHER :																																																																				

Work Order ID 138223***138223***

Page 3

Tuesday, October 27, 2015 11:06:02 AM

Item ID: D4406-041

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Fwd Wearplate Assembly

Stop

NS2

Start Date: 10/26/2015 Start Qty: 2.00

2

Cust Item ID:

Required Date: 10/26/2015 Req'd Qty: 2.00

2

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

190

Identify as per dwg & Stock Location: FP-602

0.00

100

Packaging

Memo

0.00

Packaging

LOCATION : FP002

45 0 10/12/02

200

QC21- Final Inspection - Work Order Release

0.00

200

QC

Memo

0.00

Quality Control

15/12/2 020151202

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification ☐		☐	Pressure/Forced	☐	Temperature/Cure
Design ☐	☐	Operator ☐		☐	Bending	☐	Set-up
Doc/Data ☐	☐	Offset/Setup ☐		☐	Centre Not Concentric	☐	BOM/Route
Equip/Tooling ☐	☐	Supplier ☐		☐	Cracks	☐	Broken/Damage/Defect
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Substation ☐	☐	Process Improvement ☐		☐	Marks/Chatter	☐	Drill Holes
Past Expiry Date ☐	☐	Manufacturing Process ☐		OTHER : _____			
Misidentified ☐	☐	Past Due ☐					

Tuesday, October 27, 2015 11:06:01 AM

138223

D4406-041

Start Date: 10/26/2015

Required Date: 10/26/2015

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP rev A 11.06.06 new issue EC verified by:DD
12.02.06 as per dwg revPB1 DD verf:EC

IPP rev B

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4406-1		Manufactured	No				Each	15.0000					
D4406-1 Plate													
				<u>Location</u>			<u>Loc Qty</u>			<u>Loc Code</u>			
				WA001			15						
				101544			2						
				<u>136583</u>			12						
				98745			1						
D4407-1		Manufactured	No			150	Each	30.0000	2				
D4407-1 Bar													
				<u>Location</u>			<u>Loc Qty</u>			<u>Loc Code</u>			
				WA001			24						
				<u>136437</u>			24						
				WA002			6						
				127387			6						

DQA: _____ Date: _____

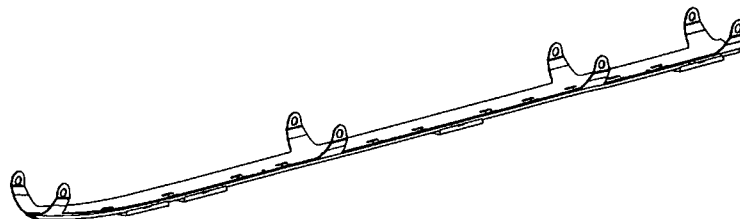


WORK ORDER NON-CONFORMANCE / UPDATE

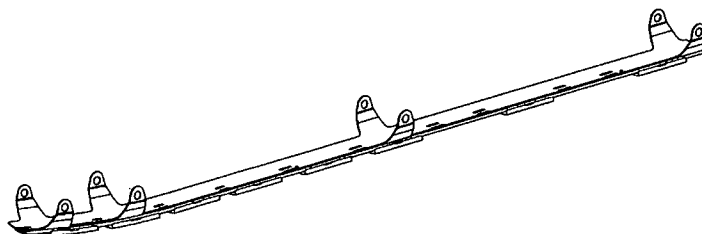
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
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Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
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Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								



D4406-041 FWD WEARPLATE ASSY



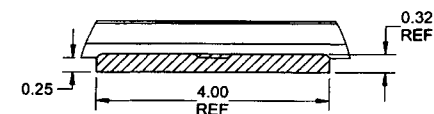
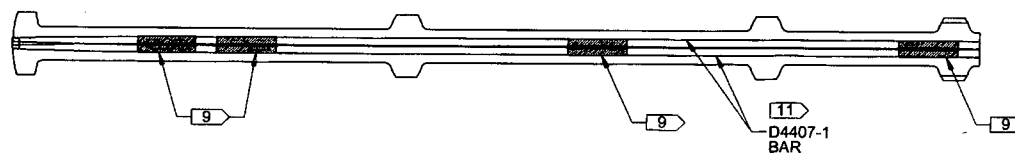
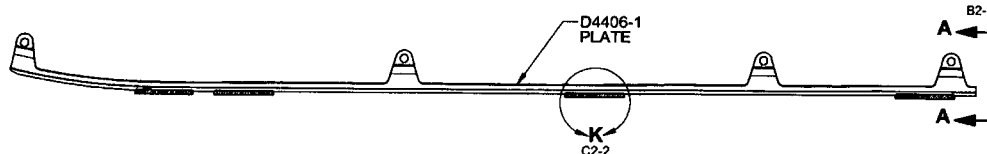
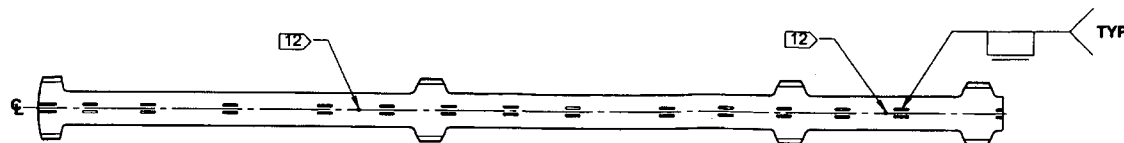
D4406-043 AFT WEARPLATE ASSY

ITEM	QTY -041	QTY -043	P/N	DESCRIPTION
1	X		D4406-041	FWD WEARPLATE ASSY
2		X	D4406-043	AFT WEARPLATE ASSY
3	1		D4406-1	PLATE
4		1	D4406-3	PLATE
5	2		D4407-1	BAR
6		2	D4407-3	BAR
7	A/R	A/R	2059B	HARDCOAT
8	A/R	A/R	4714	PLUS ONE ROCKGUARD (SEE NOTE 10, SHT 2 & 3)

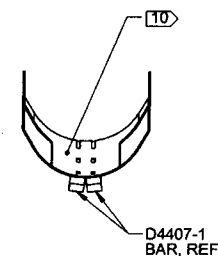
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 138223 MLC
1570-28

RELEASED
2013-03-21

C	SHEETS 4 AND 5 HOLE SLOTS RE-PITCHED. SHT 5 FWD SLOT SIZES WERE 0.88 (REF NCR12-2031).	AJS	13.03.11
B	REVISE BILL OF MATERIAL; ADD NOTE 13/14 & REVISE NOTE 9 SHT 2 & 3; MODIFY DETAIL E & F (ZN B3-6, C2-6); ADD DETAIL G (ZN C7-6); REVISE D4406-3F TAB LOCATIONS (ZN B5-6)	RF	12.02.16
A	NEW ISSUE	RF	11.08.15
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	UP	DRAWING NO.	REV. C
MFG. APPR.		D4406	SHEET 1 OF 6
APPROVED		TITLE	SCALE
DE APPR.		WEARPLATE ASSY	NTS
DATE	13.03.11	COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



DETAIL K C2-2
WELD BUILDUP DETAIL 4 PL
SCALE 4X



SECTION A-A C3-2
SCALE 2X

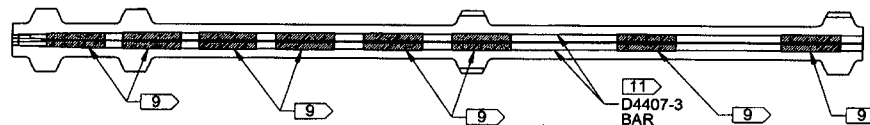
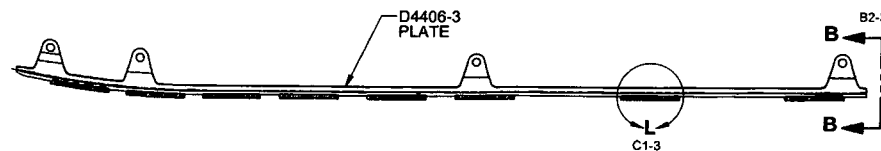
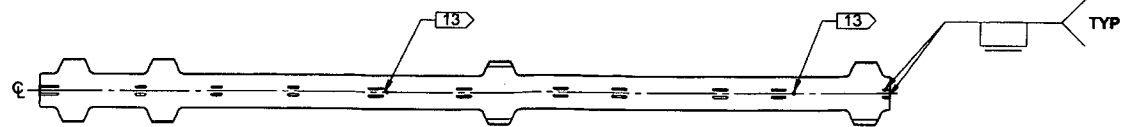
D4406-041 FWD WEARPLATE ASSY

RELEASED
2013-03-21

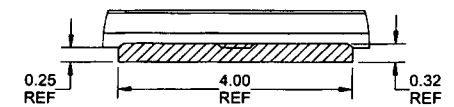
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 8.48 lbs
- 8) WELDING: PER QSI 004
- 9) 2059B HARDCOAT WELD, 0.32 THICK x 0.50 WIDE, FLUSH WITH D4407-1 BAR ON LATERAL SURFACES
- 10) COAT ENTIRE TOP (CONCAVE) SURFACE WITH A LAYER OF PLUS ONE ROCKGUARD 4714, 0.020-0.040 THICK
- 11) FORM TO MATCH PROFILE OF D4406-1 AT TIME OF WELDING
- 12) TRANSFER $\varnothing 0.188$ HOLES FROM D4406-1 TO D4407-1
- 13) NOTCH D4407-1 BARS AS REQUIRED TO FORM TO D4406-1 PLATE

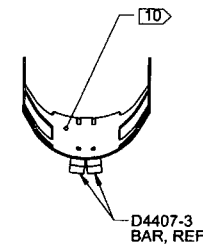
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	92	DRAWING NO.	REV. C
MFG. APPR.	15	D4406	SHEET 2 OF 6
APPROVED	14	TITLE	SCALE
DE APPR.	14	WEARPLATE ASSY	NTS
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D4406-043 AFT WEARPLATE ASSY



DETAIL L C4-3
WELD BUILDUP DETAIL 8 PL
SCALE 4X



SECTION B-B C3-3
SCALE 2X

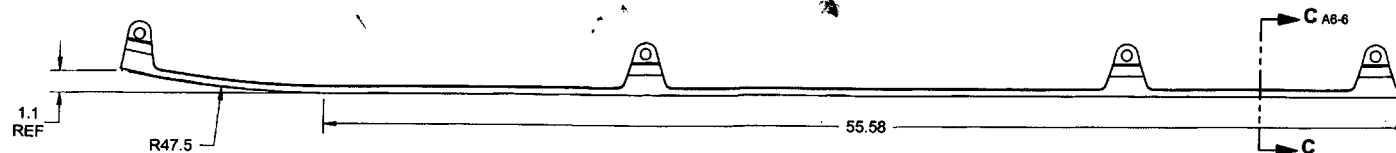
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 8.85 lbs
- 8) WELDING: PER QSI 004
- 9) 2059B HARDCOAT WELD, 0.32 THICK x 0.50 WIDE, FLUSH WITH D4407-3 BAR ON LATERAL SURFACES
- 10) COAT ENTIRE TOP (CONCAVE) SURFACE WITH A LAYER OF PLUS ONE ROCKGUARD 4714, 0.020-0.040 THICK
- 11) FORM TO MATCH PROFILE OF D4406-3 AT TIME OF WELDING
- 12) FILL TOOLING HOLE WITH WELD ONE PLACE ONLY
- 13) TRANSFER $\varnothing 0.188$ HOLES FROM D4406-3 TO D4407-3
- 14) NOTCH D4407-3 BARS AS REQUIRED TO FORM TO D4406-3 PLATE

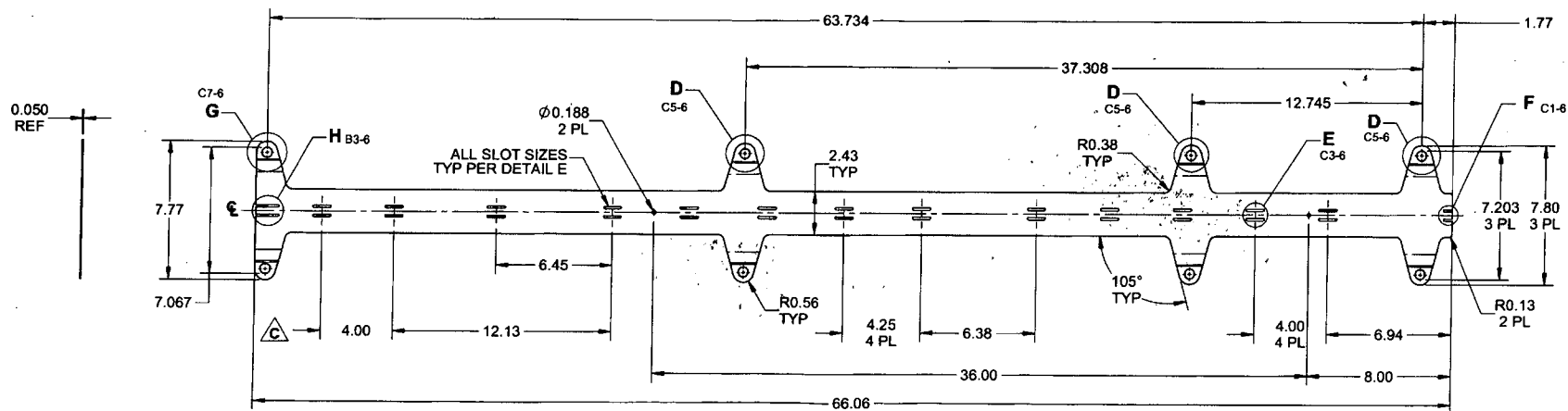
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2013-03-21

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	92	DRAWING NO.	REV. C
MFG. APPR.	15	D4406	SHEET 3 OF 6
APPROVED	140	TITLE	SCALE
DE APPR.	14	WEARPLATE ASSY	NTS
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8 7 6 5 4 3 2 1



D4406-1 PLATE
(MAKE FROM D4406-1F)



D4406-1F FLAT PATTERN

RELEASED
2013-03-21

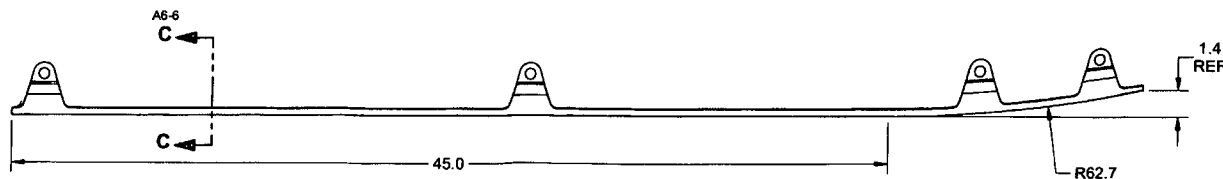
NOTES:

- 1) MATERIAL: AISI 304/316 STAINLESS STEEL SHEET, 0.050 THICK (18 GAUGE)
PER AMS 5513 OR 5524
OR ASTM A240 OR ASME SA240
REF. DART SPEC. M304S18GA
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 2.7 lbs

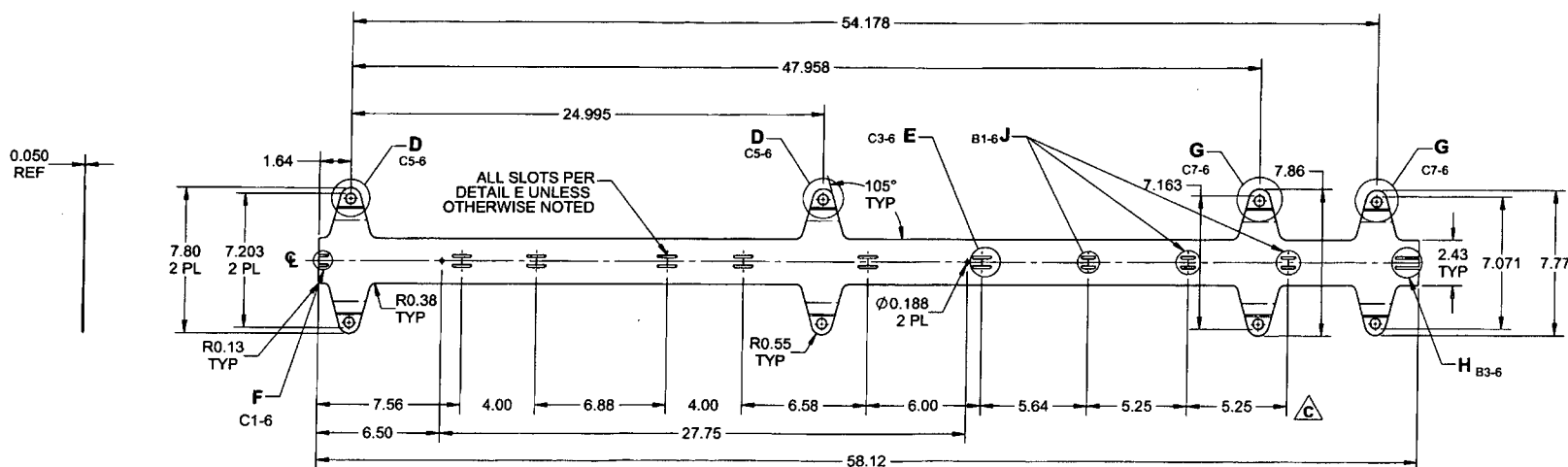
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DRAWN	AJS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. C
MFG. APPR.	<i>[Signature]</i>	D4406	SHEET 4 OF 8
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	WEARPLATE ASSY	NTS
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8 7 6 5 4 3 2 1

8 7 6 5 4 3 2 1



D4406-3 PLATE
(MAKE FROM D4406-3F)



D4406-3F FLAT PATTERN

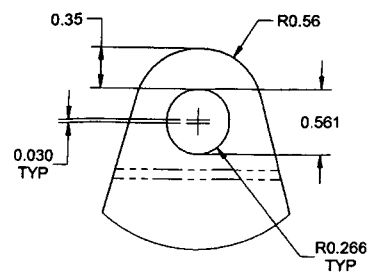
RELEASED
2013-03-21
MO

NOTES:

- 1) MATERIAL: AISI 304/316 STAINLESS STEEL SHEET, 0.050 THICK (18 GAUGE)
PER AMS 5513 OR 5524
OR ASTM A240 OR ASME SA240
REF. DART SPEC. M304S18GA
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 2.5 lbs

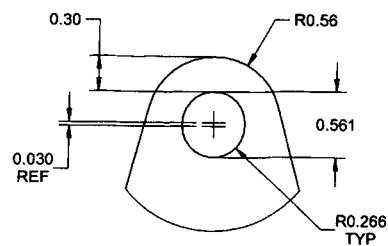
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DRAWN	AJS		
CHECKED	<i>[Signature]</i>	DRAWING NO. D4406	REV. C SHEET 5 OF 6
MFG. APPR.	<i>[Signature]</i>	TITLE WEARPLATE ASSY	SCALE NTS
DATE	13.03.11	COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE, OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

8 7 6 5 4 3 2 1



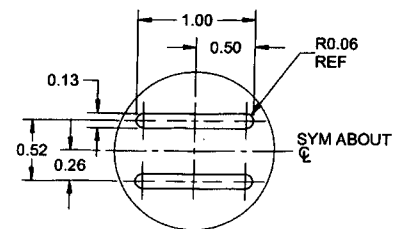
DETAIL G
SLOT DETAIL TYP
SCALE 6X

C7-4
C2-5
C3-5



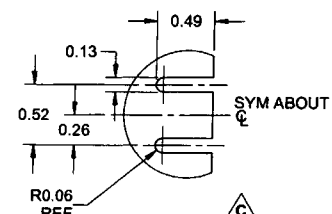
DETAIL D
SLOT DETAIL TYP
SCALE 6X

C2-4
C3-4
C5-4
C5-5
C6-5



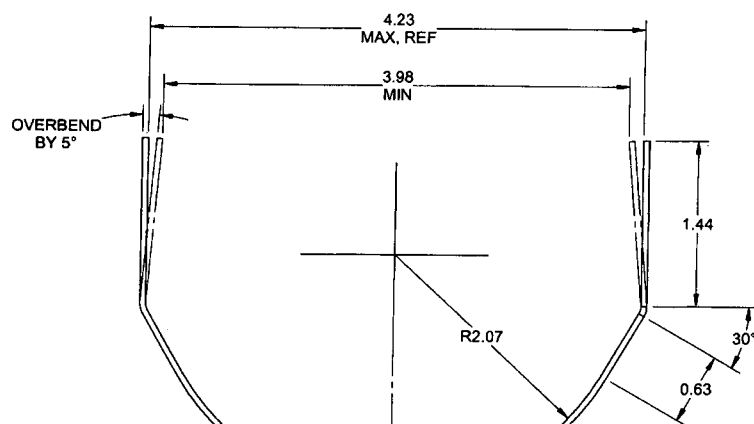
DETAIL E
SLOT DETAIL TYP
SCALE 6X

C2-4
C4-5



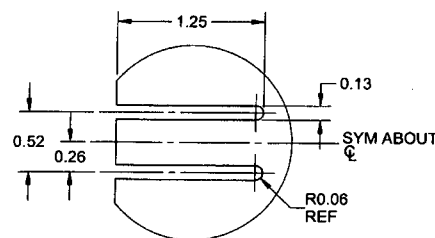
DETAIL F
SLOT DETAIL TYP
SCALE 6X

C1-4
B7-5



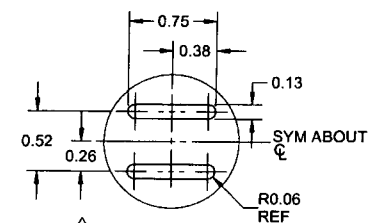
DETAIL C
DETAIL TYP
SCALE 6X

D2-4
D6-5



DETAIL H
SLOT DETAIL TYP
SCALE 6X

C7-4
B1-5



DETAIL J
SLOT DETAIL TYP
SCALE 6X

C4-5

RELEASED
2013-03-21

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	AJS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	JP	DRAWING NO.	REV. C
MFG. APPR.	DS	D4406	SHEET 6 OF 6
APPROVED	JP	TITLE	SCALE
DE APPR.	JP	WEARPLATE ASSY	NTS
DATE	13.03.11	COPYRIGHT © 2011 BY DART AEROSPACE LTD	
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Work Order NCR

Reviewed
DQA:
Date:

Printed on: Tuesday, December 01, 2015

Details			
Raised Date 11/3/2015	Status Closed	Owner Poulin, Mario	Number NCR15-5418
Target Date 11/3/2015	Standard	Severity	
Process Work Order NCR		Audit	
Raised By Person Pharand, Alex.	Raised Against (Department or Supplier) Engineering		Fault Category General\Drawing
Details Plus one rockguard not used134392 Step 142RC: Data/Doc PAR 15-469			
Keywords		Product D3512-041	
Document		Root Cause Data/Documentation	
Closed By Maloney, Rachel	Closed Date 10/20/2015	Resolution Rework	

Corrective Action steps			
Target Date 10/20/2015	Owner Pharand, Alex.	Closed Date 10/20/2015	Closed By Duval, Patrick
Details Stage Action descriptions added as needed by the stage owner... Approvals by MRB delegate			

Actions			
Number	Owner	Target Date	Completed Date
Details		Response	
1	Sheldon, Andrew	10/20/2015	10/20/2015
Apply textured coating per QSI 005 section 4.9		PAR 15-0469	



Preventive Action Report

Reviewed
DQA:
Date:

Printed on: Tuesday, December 01, 2015

Details

Raised Date 9/18/2015	Status Open	Owner Monterroza, William	Number PAR15-460
Target Date 10/30/2015	Standard	Severity MINOR	
Process Employee finding		Audit	
Raised By Person Duval, Patrick	Raised Against (Department or Supplier) Engineering		Fault Category General\Drawing
Details Found on work order D3512-041 B133130 that drawing D3512 note 9 calls to use rockguard 4714. Should be rockguard 4715A			
Keywords		Product D3512	
Document		Root Cause	
Closed By	Closed Date	Resolution	

Corrective Action

Target Date 10/23/2015	Owner Monterroza, William	Closed Date	Closed By
Details			

Actions

Number	Owner	Target Date	Completed Date
Details		Response	
3	Pharand, Alex.	10/16/2015	
review note 9 on drawing D3512			
4	Pharand, Alex.	10/16/2015	
revise all wearplate drawing that call for rockgard			

Verification & Review			
Target Date 10/23/2015	Owner Downing, Eric M	Closed Date	Closed By
Details			

Actions			
Number	Owner	Target Date	Completed Date
Details		Response	